

# **STREETSVILLE**

## **water pollution control plant**

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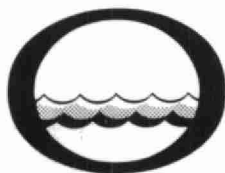
1968

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*Water management in Ontario*

Ontario  
Water Resources  
Commission

135 St. Clair Ave. W.  
Toronto 7  
Ontario


We are pleased to present you with the Operating Summary for the water pollution control facilities operated for you during 1968.

Both the financial and technical information presented should be of assistance to your present and future planning in this important phase of municipal activity.

A new format has been devised to allow greater readability with equally detailed content. We trust that this will meet with your approval.

Our staff wish to express their appreciation for your co-operation throughout the year.

  
D. S. Caverly,  
General Manager.

  
D. A. McTavish, P. Eng.,  
Director,  
Division of Plant Operations.

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**STREETSVILLE**  
**water pollution control plant**

operated for

THE TOWN OF STREETSVILLE

by the

ONTARIO WATER RESOURCES COMMISSION

**1968 ANNUAL OPERATING SUMMARY**

## FOREWORD

● This operating summary outlines the project's technical capabilities and financial status in 1968. Such information mirrors past and present performance, but a major intention is to anticipate the future -- to solve problems before they occur.

The new format in which this year's data are presented is designed to offer a higher level of readability than in the past, without a corresponding decrease in compactness, accuracy and detail.

Although your Regional Operations Engineer carries the major responsibility for the contents of the report, those involved in its preparation are attached to several Commission sections and divisions. The statistics section of the Division of Plant Operations compiled the information for the graphs and charts. The draughting section of the Division of Sanitary Engineering drew the graphs. The Division of Finance provided all cost data.

Only the close co-operation of these departments allowed the publication of this summary.

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## **'68 REVIEW**

A total of 260.66 million gallons was treated in 1968, giving an average daily flow of 0.71 mgd. The probability of flow graph indicates that the plant was overloaded 25 percent of the time.

The BOD and suspended solids concentrations in the raw sewage were high at 217 mg/l and 307 mg/l respectively; however, effluent BOD and suspended solids concentrations were within the Commission's objectives, averaging 11 mg/l and 10 mg/l respectively.

The total expenditures for the year amounted to \$18,688.58. This resulted in a cost of \$71.31 per million gallons of sewage treated.

The plant was maintained by one operator and a part-time operator for the year. The plant was under supervision eight hours per day, Monday to Friday, and also Saturday and Sunday mornings.

## PROJECT COSTS

NET CAPITAL COST (Final)	\$ <u>310,937.98</u>
DEDUCT - Payments from Municipalities	<u>30,000.00</u>
Long Term Debt to OWRC	<u>\$280,937.98</u>
Debt Retirement Balance at Credit (Sinking Fund) December 31, 1968	\$ <u>74,740.81</u>
Net Operating	\$ 18,688.58
Debt Retirement	5,669.00
Reserve	1,301.62
Interest Charged	<u>15,772.80</u>
TOTAL	\$ <u>41,432.00</u>

### RESERVE ACCOUNT

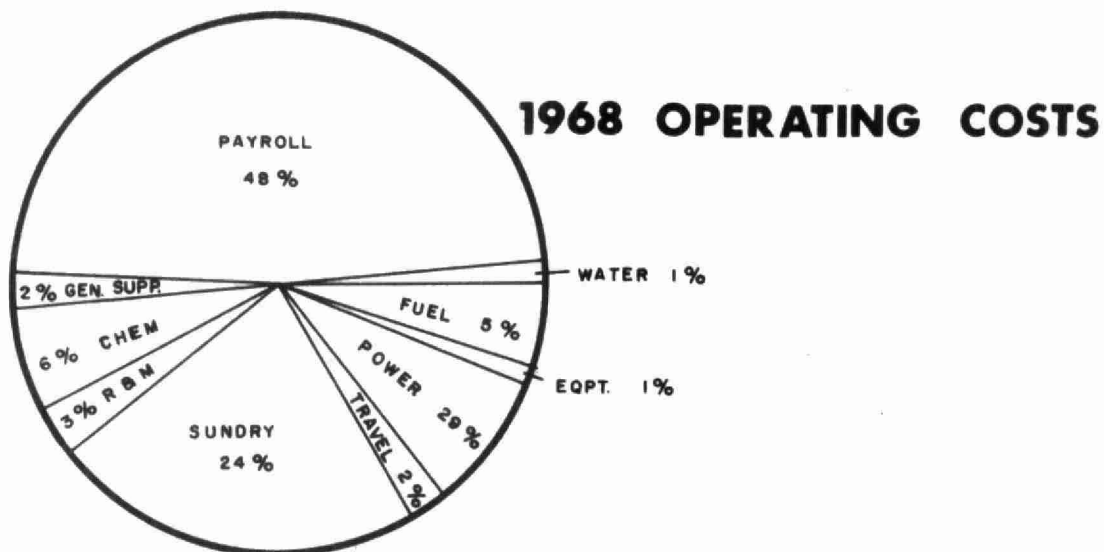
Balance at January 1, 1968	\$ 21,726.29
Deposited by Municipality	1,301.62
Interest Earned	<u>1,302.10</u>
	\$ 24,330.01
Less Expenditures	<u>300.00</u>
Balance at December 31, 1968	\$ <u>24,030.01</u>



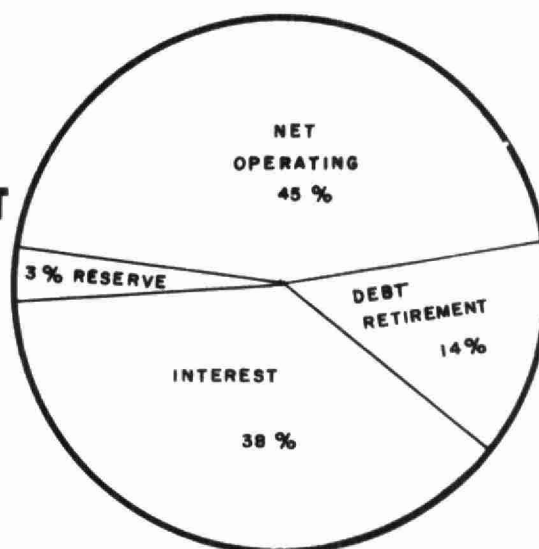
## Monthly Operating Costs

MONTH	TOTAL EXPENDITURE	PAYROLL	CASUAL PAYROLL	FUEL	POWER	CHEMICAL	GENERAL SUPPLIES	EQUIPMENT	REPAIRS & MAINTENANCE	* SUNDRY	WATER	TRAVEL
JAN	961.88	491.17	212.77	-	143.32	-	19.75	-	-	5.25	26.68	62.94
FEB	1082.90	417.87	185.04	140.79	135.70	-	60.46	-	-	114.70	28.34	-
MAR	1856.42	717.57	286.73	162.14	128.29	238.61	8.77	-	-	287.40	15.43	11.48
APRIL	924.05	450.85	221.94	-	127.62	-	10.29	-	-	86.50	13.97	12.88
MAY	1189.32	450.85	203.49	232.47	130.46	-	47.92	34.20	64.92	12.50	12.51	-
JUNE	1884.24	476.51	203.38	-	138.74	289.64	58.78	133.88	18.56	519.68	19.03	26.04
JULY	1378.34	407.66	296.86	-	121.33	-	9.75	-	31.00	458.81	17.23	35.70
AUG	464.17	331.91	-	60.85	-	-	58.91	-	-	12.50	-	-
SEPT	1619.06	431.21	314.78	57.20	258.40	-	41.92	-	-	459.28	57.27	-
OCT	2226.97	507.14	223.94	60.44	-	327.04	56.53	-	-	1012.43	-	39.45
NOV	1787.43	464.73	221.66	136.92	262.27	238.61	46.19	-	-	338.13	35.22	43.70
DEC	3313.80	1121.62	212.20	81.62	127.42	-	9.75	-	521.88	1179.18	17.23	42.90
TOTAL	18688.58	6268.09	2582.79	932.43	1573.55	1093.90	429.02	168.08	636.36	4486.36	242.91	275.09

\*SUNDRY INCLUDES SLUDGE HAULING COSTS WHICH WERE \$3,575.84



### TOTAL ANNUAL COST



### Yearly Operating Costs

YEAR	M.G.TREATED	TOTAL COST	COST PER MILLION GALLONS	COST PER LB OF BOD REMOVED
1964	172.3	\$14,024.94	\$81.39	3 cents
1965	200.1	14,565.95	72.79	2 cents
1966	199.5	16,479.72	82.62	2 cents
1967	242.0	18,578.39	76.77	3 cents
1968	260.66	18,688.58	71.70	3 cents

## **Process Data**

The flow to the plant increased by 18.66 mg over the 1967 flow. The maximum twenty-four hour flow treated was 1.84 mgd and occurred during the week ending November 30. The highest monthly average flow occurred in March.

## PLANT FLOWS and CHLORINATION

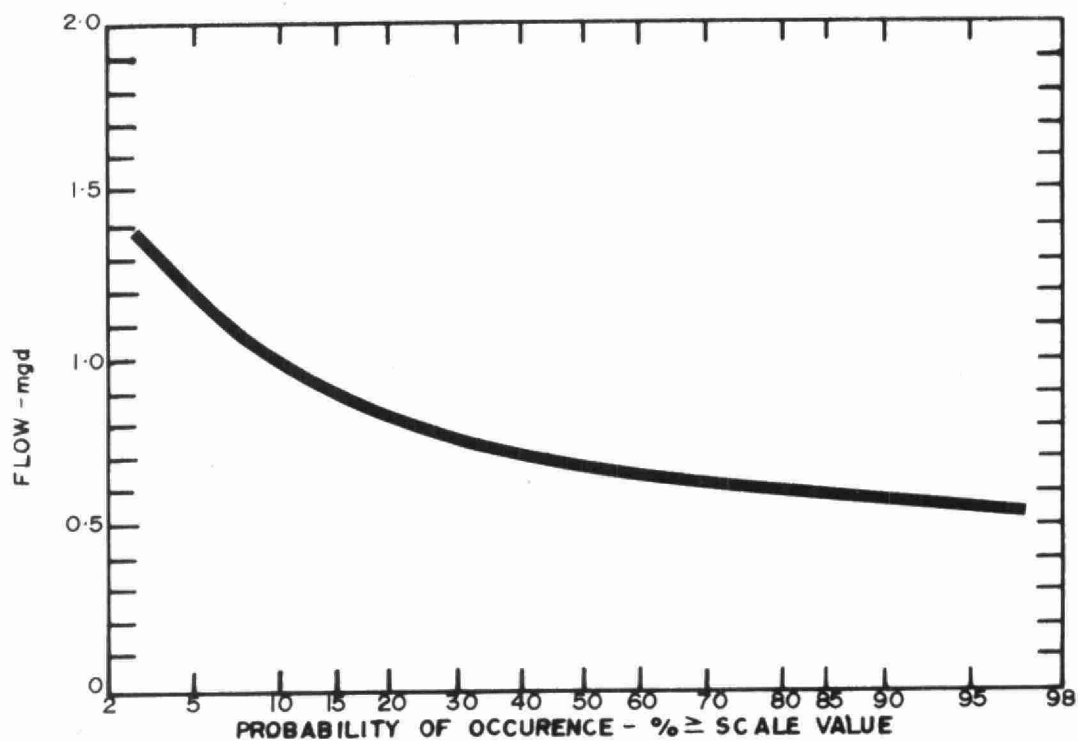
MONTH	TOTAL FLOW mg	AVERAGE DAILY FLOW mg	MAXIMUM DAILY FLOW mg	MINIMUM DAILY FLOW mg	CHLORINE USED lbs.	DOSAGE mg/l
JAN	18.97	.61	1.12	.48	426	2.3
FEB	19.65	.68	1.63	.46	148	.8
MAR	25.81	.83	1.55	.40	192	.8
APR	19.43	.65	1.04	.51	462	2.4
MAY	22.10	.71	1.23	.50	533	2.4
JUN	19.94	.67	1.38	.49	463	2.3
JUL	19.00	.61	.80	.50	258	3.0
AUG	24.24	.78	1.22	.41	702	2.9
SEPT	21.54	.72	1.44	.54	597	2.8
OCT	20.94	.68	.87	.49	679	3.2
NOV	25.70	.86	1.84	.52	621	2.4
DEC	23.36	.75	1.67	.45	487	2.1
TOTAL	260.66	-	-	-	5568	-
AVERAGE	-	.71	-	-	464	2.1

### COMMENTS

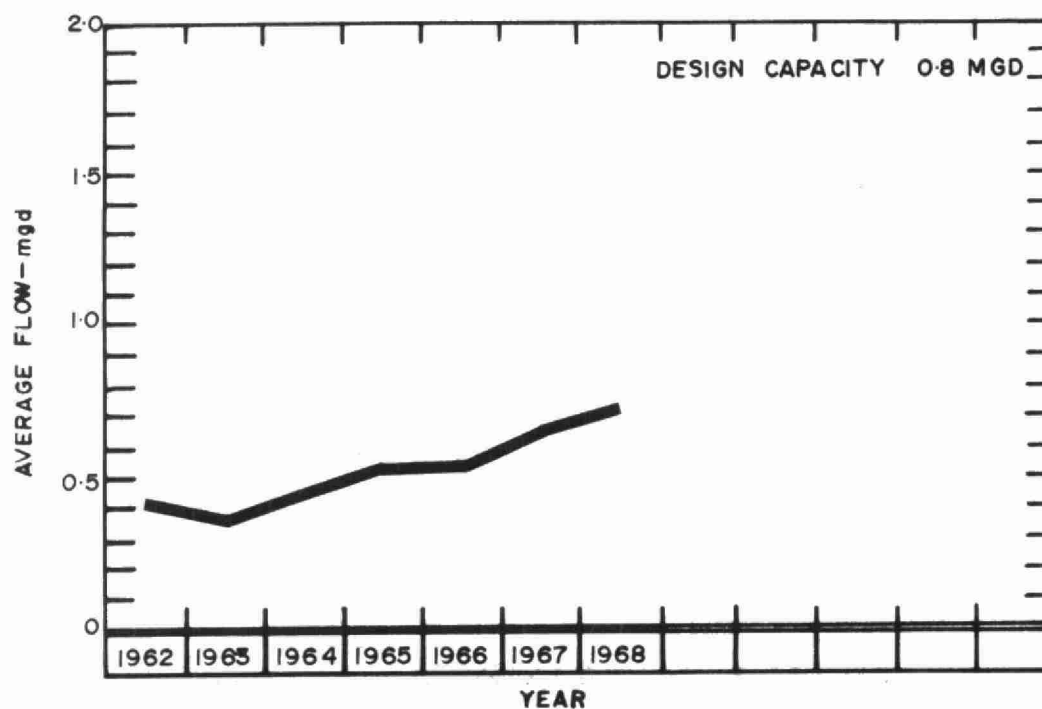
The total flow for the year was 260.66 mg. This is 18.66 mg higher than the 1967 flows.

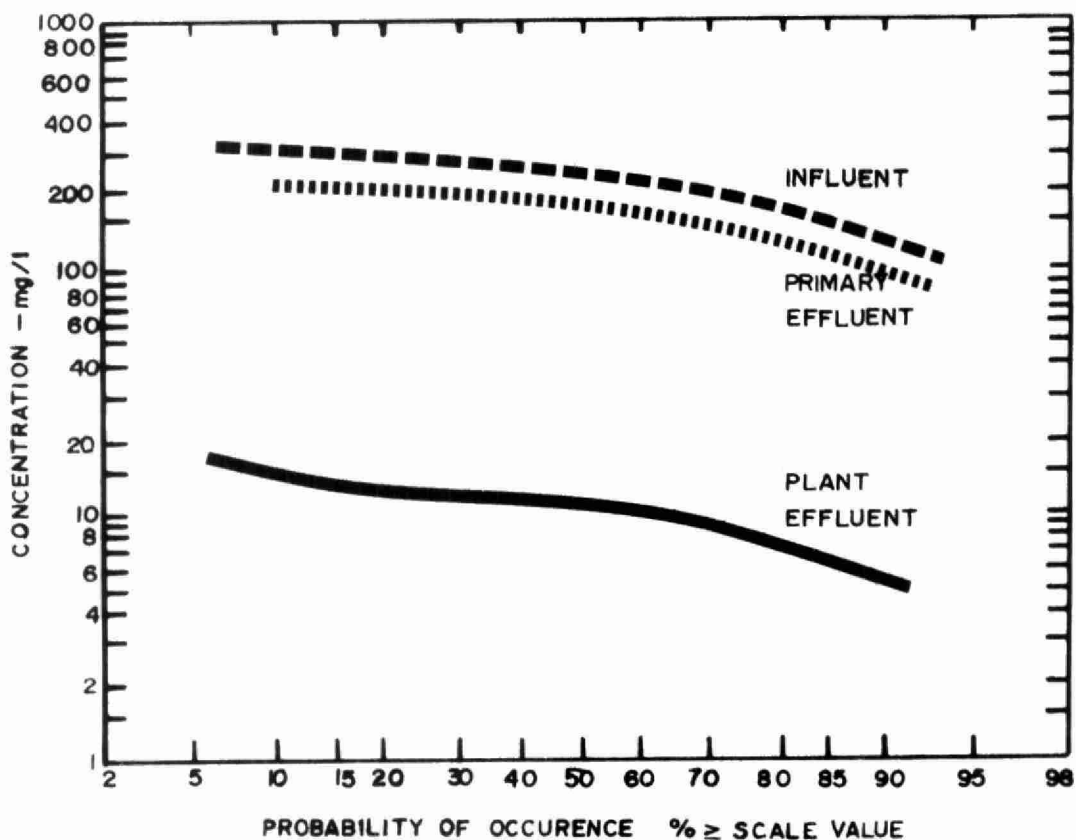
The average daily flow was 0.71 mgd and the maximum and minimum flows were 1.84 mgd and 0.40 mgd, respectively.

A total of 5568 lbs. of chlorine were used to give an average dosage of 2.1 mg/l to the effluent. This represents an average dosage of 21.4 lbs. per million gallons of sewage treated.

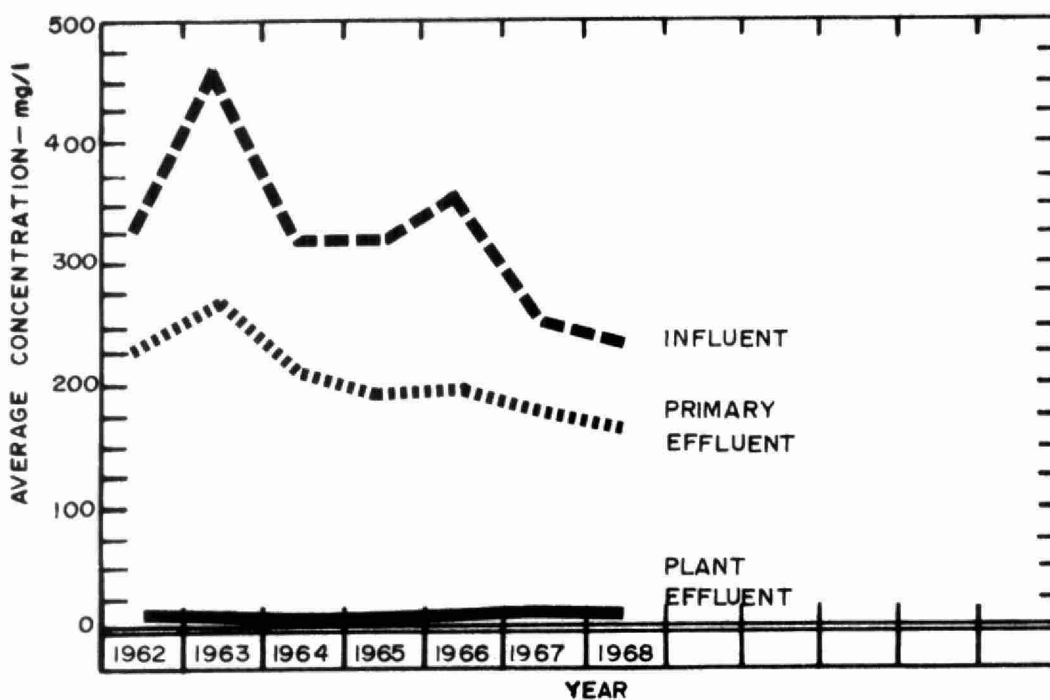


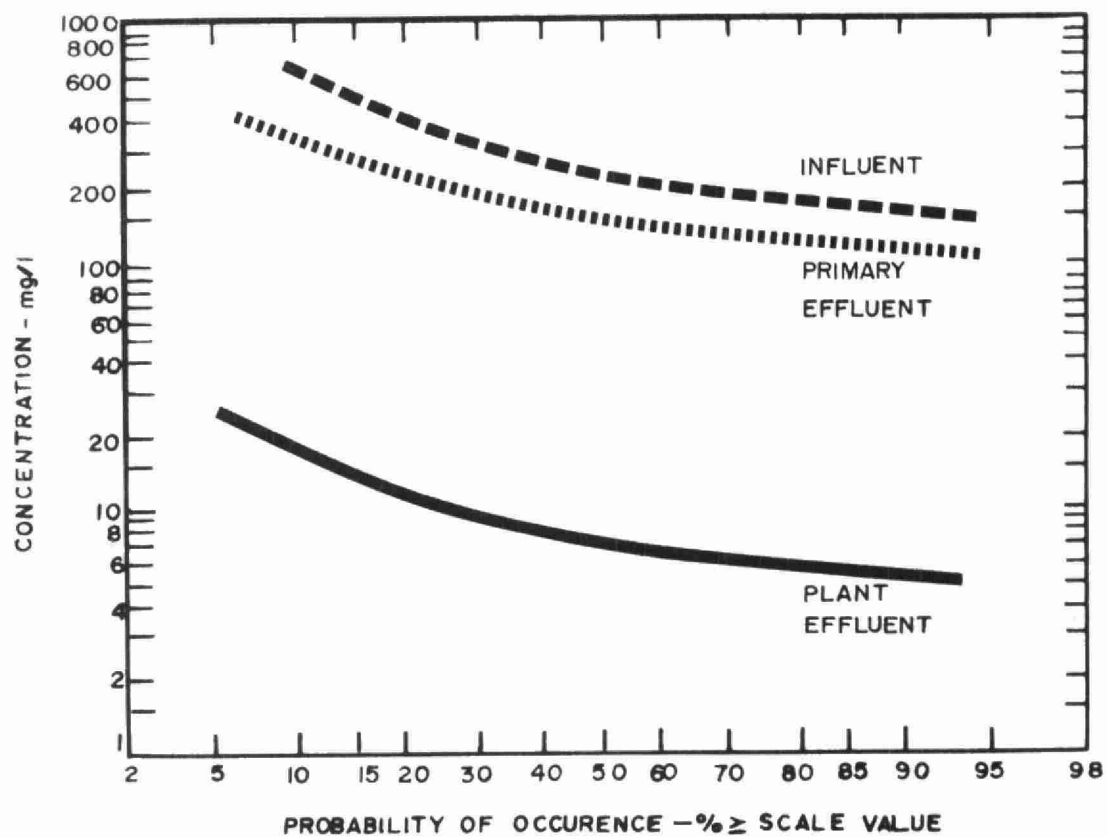
## **FL O W S**



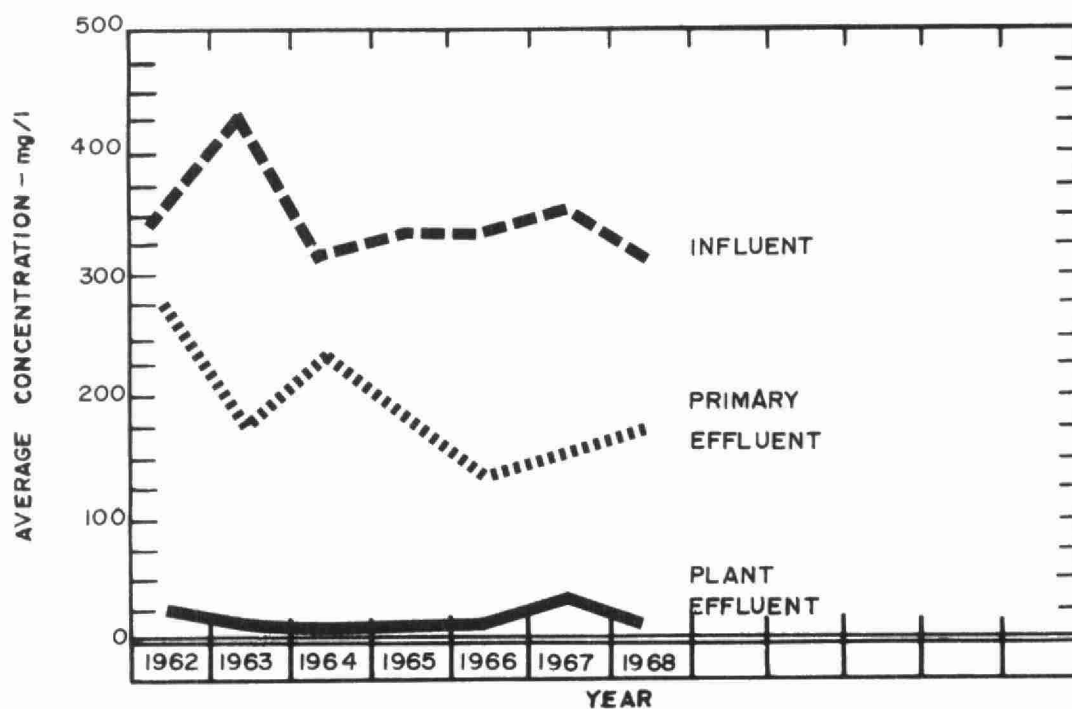


## BIOCHEMICAL OXYGEN DEMAND





## SUSPENDED SOLIDS



## PLANT EFFICIENCY

MONTH	BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				GRIT
	INF CONC <sup>N</sup> mg/l	EFF CONC <sup>N</sup> mg/l	RED <sup>N</sup> %	REMOVAL 10 <sup>3</sup> lb	INF CONC <sup>N</sup> mg/l	EFF CONC <sup>N</sup> mg/l	RED <sup>N</sup> %	REMOVAL 10 <sup>3</sup> lb	REMOVAL ft <sup>3</sup>
JAN	335	6	98	62.4	438	13	97	80.6	10
FEB	260	12	95	48.7	294	10	97	55.8	20
MAR	142	12	92	33.6	164	10	94	39.7	21
APR	195	12	94	35.6	178	9	95	32.8	10
MAY	160	8	95	33.7	868	20	98	187.4	16
JUN	230	14	94	43.1	274	8	97	53.0	10
JULY	-	-	-	-	-	-	-	-	11
AUG	115	6	95	26.5	160	5	97	37.6	30
SEPT	190	4	98	40.1	163	8	95	33.4	20
OCT	250	13	95	49.6	304	7	98	62.2	18
NOV	215	20	91	50.1	241	10	96	59.4	14
DEC	300	13	96	67.0	290	10	97	65.4	17
TOTAL	-	-	-	-	-	-	-	-	197
AVERAGE	217	11	95	44.6	307	10	97	64.3	16

### COMMENTS

The average BOD and suspended solids in the influent were 217 mg/l and 307 mg/l respectively. In the effluent, the average BOD and suspended solids were 11 mg/l and 10 mg/l respectively. This represents a 95% reduction in BOD and a 97% reduction in suspended solids. From these observations it can be seen that the plant is operating at good efficiency.

A total of 197 cubic feet of grit was removed during 1968.

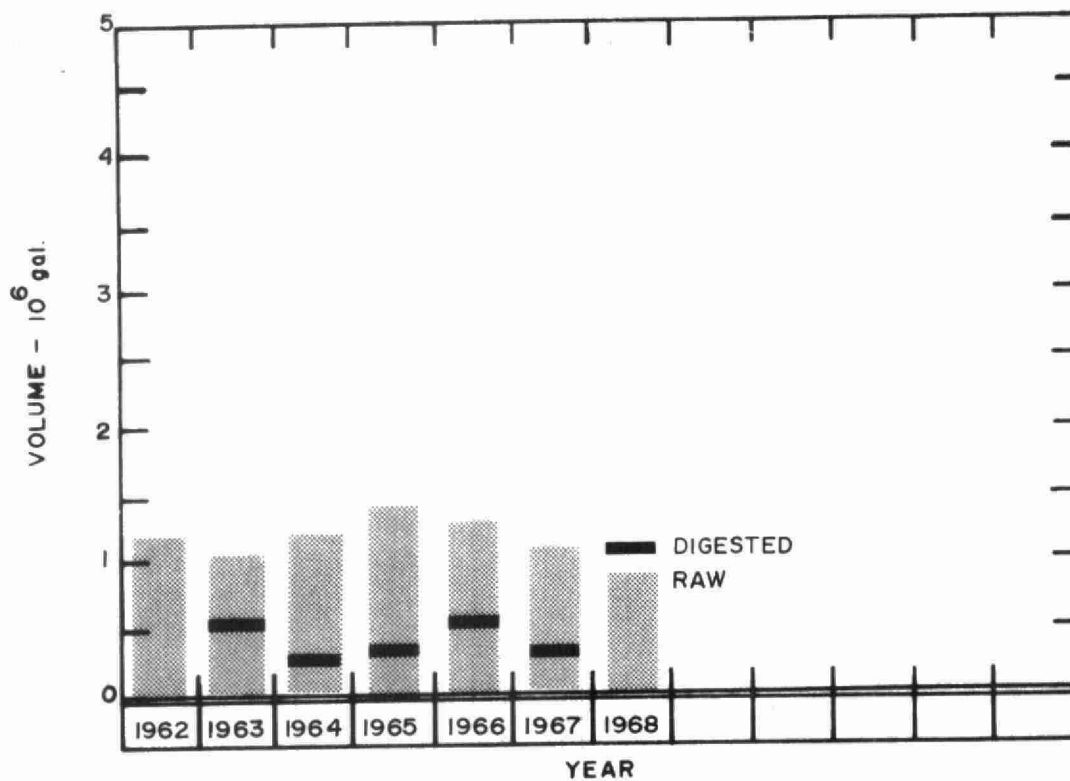


## AERATION

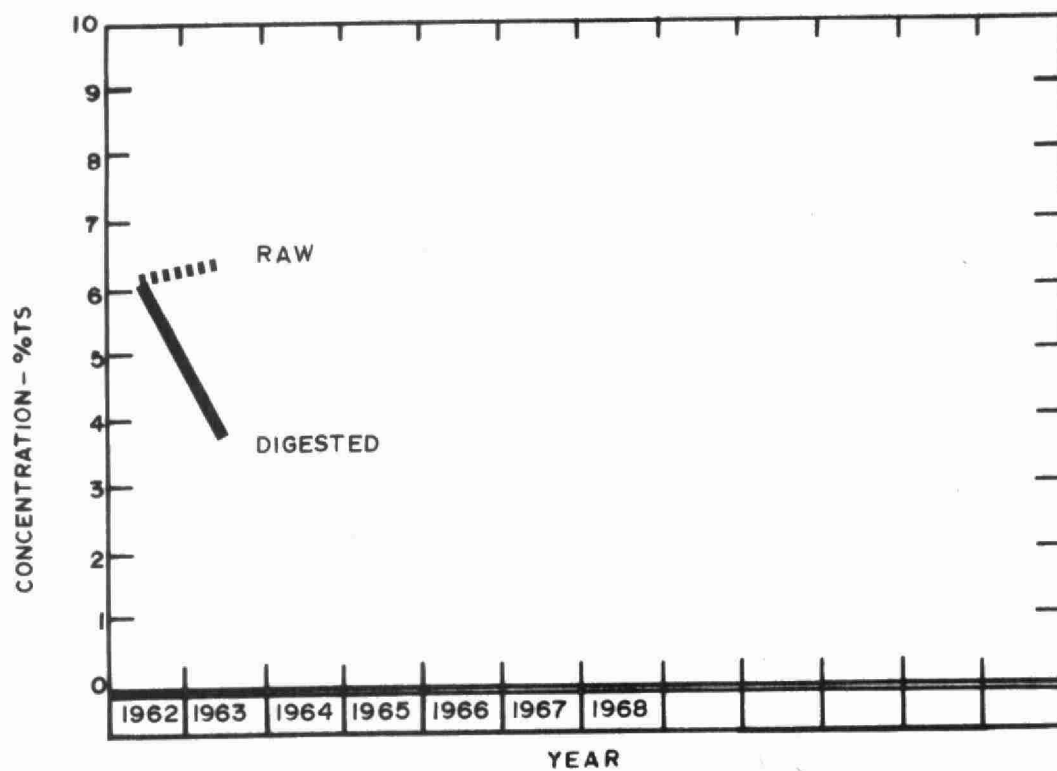
MONTH	AVERAGE FLOW mgd	PRIMARY EFF		SECONDARY EFF		MLSS CONC <sup>N</sup> mg/l	F/M $\left(\frac{\text{lb BOD}}{\text{lb MLSS}}\right)$	AIR USED $\left(\frac{1000 \text{ ft}^3}{\text{lb BOD}}\right)$ REMOVED	WASTE SLUDGE lb
		BOD CONC <sup>N</sup> mg/l	SS CONC <sup>N</sup> mg/l	BOD CONC <sup>N</sup> mg/l	SS CONC <sup>N</sup> mg/l				
JAN	.61	158	157	6	13	1,530	.25	1.46	-
FEB	.68	210	140	12	10	1,960	.29	1.00	-
MAR	.83	132	148	12	10	1,690	.25	1.36	-
APRIL	.65	170	128	12	9	1,940	.22	1.33	-
MAY	.71	102	149	8	20	1,740	.16	2.04	-
JUN	.67	170	326	14	8	1,950	.23	1.32	-
JUL	.61	-	-	-	-	1,733	-	-	-
AUG	.78	90	61	6	5	1,662	.17	2.08	-
SEPT	.72	210	173	4	8	1,789	.33	.88	-
OCT	.68	-	311	13	7	2,643	-	-	-
NOV	.86	200	185	20	10	1,638	.41	.92	-
DEC	.75	200	150	13	10	1,645	.36	.12	-
TOTAL	-	-	-	-	-	-	-	-	-
AVERAGE	.71	164	173	11	10	1,972	.27	1.25	-

### COMMENTS

The average flow to the aeration section was 0.71 mgd. The influent BOD and suspended solids were 164 mg/l and 173 mg/l respectively, while the effluent BOD and suspended solids were 11 mg/l and 10 mg/l respectively. This represents an average removal of 93.5% BOD and 94.2% suspended solids in the aeration section.



## DIGESTION



NOTE: Solids concentration not available  
1964 through 1968

## SLUDGE DIGESTION and DISPOSAL

MONTH	RAW SLUDGE			DIGESTED SLUDGE			SUPERNATANT		SLUDGE DISPOSAL	
	VOLUME 10 <sup>3</sup> gal	T. S. %	V. S. %	VOLUME 10 <sup>3</sup> gal	T. S. %	V. S. %	VOLUME 10 <sup>3</sup> gal	T. S. %	LIQUID yd <sup>3</sup>	DEWATERED yd <sup>3</sup>
JAN	85.6	-	-	21.3	-	-	-	-	102	3
FEB	81.0	-	-	24.9	-	-	-	-	148	0
MAR	88.9	-	-	17.0	-	-	-	-	74	25
APR	90.8	-	-	34.4	-	-	-	-	222	12
MAY	92.7	-	-	299.2	-	-	-	-	278	3
JUN	109.1	-	-	42.9	-	-	2.2	-	257	3
JUL	59.2	-	-	18.7	-	-	2.8	-	111	0
AUG	50.4	-	-	46.8	-	-	3.5	-	278	0
SEPT	61.6	-	-	211.9	-	-	1.9	-	296	0
OCT	82.7	-	-	59.2	-	-	4.0	-	352	0
NOV	62.0	-	-	56.1	-	-	2.5	-	333	0
DEC	56.0	-	-	210.2	-	-	26.0	-	330	0
TOTAL	910.0	-	-	1042.6	-	-	-	-	2781	46
AVERAGE	75.8	-	-	86.9	-	-	* 6.1	-	232	-

\* Seven months' data

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## CONCLUSIONS

Although the plant received high concentrations of BOD and suspended solids in the raw sewage, good efficiency was obtained.

The plant capacity will be sever

It will therefore be necessary t  
in good condition to limit infiltr

It will also be necessary to kee  
limit the organic and chemical l

Date Due


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